

WHAT IS CLAIMED IS:

1. A positive temperature coefficient thermistor comprising:
a laminate including a plurality of thermistor layers stacked in a lamination direction and having a positive resistance temperature coefficient;
first and second external electrodes disposed at different positions on an outer surface of the laminate;
a plurality of first internal electrodes and a plurality of second internal electrodes arranged so as to extend along predetermined interfaces between the plurality of thermistor layers inside of the laminate and so as to be electrically connected to the first external electrode and the second external electrode, respectively, the first internal electrodes and the second internal electrodes being arranged alternately in the lamination direction so that a portion of the first internal electrodes and a portion of the second internal electrodes overlap each other while sandwiching the thermistor layers therebetween; and
at least one non-heating portion, which is not heated when a voltage is applied between the first and second internal electrodes, being located at an approximate center along a direction that is substantially perpendicular to the lamination direction of the portion of the laminate where the first and the second internal electrodes are arranged and at least in an approximate center in the lamination direction thereof.
2. A positive temperature coefficient thermistor according to Claim 1, wherein the at least one non-heating portion includes a cavity provided in at least one of the thermistor layers.
3. A positive temperature coefficient thermistor according to Claim 1, wherein the at least one non-heating portion includes a portion that is not provided with an electrode material in at least one of the first internal electrodes and the second internal electrodes.
4. A positive temperature coefficient thermistor according to Claim 3, wherein the portion not provided with the electrode material includes an opening provided in the at least one of the first internal electrodes and the second internal electrodes.

5. A positive temperature coefficient thermistor according to Claim 3, wherein the portion not provided with the electrode material includes a cut portion provided in the at least one of the first internal electrodes and the second internal electrodes.

6. A positive temperature coefficient thermistor according to Claim 1, wherein the at least one non-heating portion includes at least one cavity in the laminate having a shape that is one of a vertical column, substantially triangular, substantially rectangular, substantially polygonal, substantially elliptic, and star shaped.

7. A positive temperature coefficient thermistor according to Claim 1, further comprising a plurality of non-heating portions arranged and aligned at the approximate center along the direction that is substantially perpendicular to the lamination direction of the portion of the laminate where the first and the second internal electrodes are arranged and in the approximate center in the lamination direction thereof.

8. A positive temperature coefficient thermistor according to Claim 7, wherein the plurality of non-heating portions includes a plurality of cavities formed in the laminate.

9. A positive temperature coefficient thermistor according to Claim 8, wherein each of the plurality of cavities has a shape that is one of a vertical column, substantially triangular, substantially rectangular, substantially polygonal, substantially elliptic, and star shaped.

10. A positive temperature coefficient thermistor comprising:
a laminate including a plurality of thermistor layers stacked in a lamination direction and having a positive resistance temperature coefficient;
first and second external electrodes disposed at different positions on an outer surface of the laminate;
a plurality of first internal electrodes and a plurality of second internal electrodes arranged to extend along predetermined interfaces between the plurality of thermistor layers inside of the laminate and so as to be electrically connected to the first external electrode and the second external electrode, respectively, the first internal electrodes and the second internal

electrodes being arranged alternately in the lamination direction so that a portion of the first internal electrodes and a portion of the second internal electrodes overlap each other in the lamination direction while sandwiching the thermistor layers; and

at least one cavity being provided in at least one of the thermistor layers in an approximate center along a direction that is substantially perpendicular to the lamination direction of the portion of the laminate where the first and the second internal electrodes overlap each other, the at least one cavity being positioned at least at an approximate center in the lamination direction of the portion of the laminate where the first and the second internal electrodes are arranged.

11. A positive temperature coefficient thermistor according to Claim 10, wherein the at least one cavity is formed so as pass through the thermistor layer in the thickness direction.

12. A positive temperature coefficient thermistor according to Claim 11, wherein the internal electrode positioned on one end side of the at least one cavity is provided with an opening connected to the at least one cavity.

13. A positive temperature coefficient thermistor according to Claim 10, wherein the at least one cavity has a shape that is one of a vertical column, substantially triangular, substantially rectangular, substantially polygonal, substantially elliptic, and star shaped.

14. A positive temperature coefficient thermistor according to Claim 10, further comprising a plurality of cavities formed in the laminated and arranged and aligned at the approximate center along a direction that is substantially perpendicular to the lamination direction of the portion of the laminate where the first and the second internal electrodes overlap each other, and the plurality of cavities being positioned at least at the approximate center in the lamination direction of the portion of the laminate where the first and the second internal electrodes are arranged.

15. A positive temperature coefficient thermistor according to Claim 14, wherein each of the plurality of cavities has a shape that is one of a vertical column, substantially

triangular, substantially rectangular, substantially polygonal, substantially elliptic, and star shaped

16. A positive temperature coefficient thermistor comprising:
a laminate including a plurality of thermistor layers stacked in a lamination direction and having a positive resistance temperature coefficient;
first and second external electrodes disposed at different positions on an outer surface of the laminate; and
a plurality of first internal electrodes and a plurality of second internal electrodes arranged so as to extend along predetermined interfaces between the plural thermistor layers inside the laminate and so as to be electrically connected to the first external electrode and the second external electrode, respectively, the first internal electrodes and the second internal electrodes being arranged alternately in the lamination direction so that a portion of the first internal electrodes and a portion of the second internal electrodes overlap each other while sandwiching the thermistor layers therebetween, at least one of the first and second internal electrodes which is positioned at least at an approximate center in the lamination direction of the portion of the laminate where the first and second internal electrodes are arranged including a portion thereof that is not provided with the electrode, the portion not provided with the electrode being positioned at least an approximate center along a direction that is substantially perpendicular to the lamination direction of the portion of the laminate where the first and second internal electrodes overlap each other.

17. A positive temperature coefficient thermistor according to Claim 16, wherein the portion not provided with the electrode includes an opening provided in the internal electrode.

18. A positive temperature coefficient thermistor according to Claim 16, wherein the portion not provided with the electrode includes a cut portion provided in the internal electrode.

19. A positive temperature coefficient thermistor according to Claim 16, wherein the portion not provided with the electrode is provided in all of the first electrodes or all of the second internal electrodes.

20. A positive temperature coefficient thermistor according to Claim 16, wherein the portion not provided with the electrode is provided in all of the first electrodes and the second internal electrodes.